REMARKS

I. INTRODUCTION

Applicants hereby respectfully request reconsideration of the application in light of the arguments to appear hereinafter.

II. REJECTION OF CLAIMS 1-9, 11, 15-29, 31 AND 32 UNDER 35 U.S.C. § 103

In the Final Office Action, the claims 1-9, 11, 15-29, 31 and 32 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicant Disclosed Prior Art Figure 3 in view of Shildneck (U.S. Patent No. 3,014,139) and further in view of Elton et al. (U.S. Patent No. 5,036,165; "Elton ('165)"). The Office contends that it would have been obvious to have used the cable assembly of Shildneck having semiconducting layers as taught by Elton ('165) to the device as disclosed in prior art figure 3 since such a modification, according to Elton ('165), would provide a conductor which prohibits the development of corona discharge. Applicants respectfully traverse this rejection for at least the reason that there is no motivation or incentive to combine the cited references. As a preliminary matter, a brief interpretation of the Elton ('165) reference is required.

INTERPRETATION OF ELTON ET AL. (U.S. PATENT 5,036,165)

Applicants understand the Office Action to mean that the Examiner is reading Elton ('165) as disclosing a particular type of electrical cable used as a winding in a dynamoelectric machine. For the reasons to appear hereinafter, Elton ('165) does not disclose that the electrical cable shown in Figure 1 thereof may be used for windings in a dynamoelectric machine. Rather, the conductor shown in Figure 1 of Elton ('165) is used only for an electrical transmission and distribution cable.

Elton ('165) is a divisional of what is now issued U.S. Patent No. 4,853,565 (Elton ('565)). As stated in column 1, lines 5-9 of Elton ('165), the '565 patent is incorporated by reference in its entirety into Elton ('165).

Therefore, although not reproduced expressly in Elton ('165), the Elton ('165) patent must be construed as if all of the text and drawings in Elton ('565) were expressly included in and reproduced in Elton ('165).

Applicants contend Elton ('565) teach mutually exclusive embodiments (*i.e.*, a "cable," a "bar," or "windings" in a generator). When the appropriate teaching from Elton ('565) is considered, one of ordinary skill would not see an incentive to combine it with Shildneck. Elton ('565) disclose, generally, the semiconducting layer for insulated electrical conductors in three different embodiments, none of which are a cable winding. The first embodiment (Figs. 1-6) deals with windings in a dynamoelectric machine. In this embodiment, the conductors are referred to exclusively as "windings" or "bars." The second embodiment (Fig. 7) relates strictly to an electrical cable 100 used for the transmission of high voltage. Within this embodiment, the conductor is referred to as a "cable" and not as a "bar" or "winding." The third embodiment (Fig. 8) relates to the use of a semiconductor layer disposed on an electrical housing surrounding digital electrical equipment. The conductor in this particular embodiment is referred to as a "housing" as opposed to a "cable", a "bar," or a "winding." In reviewing the Elton et al. references, the terms used were carefully chosen and applied uniformly throughout the references.

With the foregoing as background, it follows that the mention in Elton ('165) to a "dynamoelectric machine" was in all likelihood inadvertent (*i.e.*, that term, or sentences containing that term, were not deleted when the divisional was filed on the "cable" embodiment). In any event, however, why such mention to a "dynamoelectric machine" remains in the Elton ('165) patent is fairly immaterial, since, as described above, the entire contents of the Elton ('565) patent are incorporated by reference into the Elton ('165) patent. When all of the disclosure is taken together, as it must, it is clear that the conductor designated 100 in Elton ('165) relates only to an electrical cable for transmission and distribution of electrical power, and not to a winding for a dynamoelectric machine. Any other interpretation, Applicants submit, would be contrary to the plain meaning given to the words as defined in the Elton ('165) and Elton ('565) specifications.

NO MOTIVATION TO COMBINE

The Office has rejected the above claims as being obvious over Applicants' Figure 3 in view of Shildneck and further in view of Elton ('165). Applicants submit that this is an improper combination of references in light of the standard regarding such a combination set forth in In Re Geiger, 815 F.2d at 688, 2 USPQ2d at 1278 (Fed. Cir. 1987). This standard is as follows: "[o]bviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, *absent some teaching, suggestion or incentive* supporting the combination." Id. (emphasis added).

Shildneck is an electric machine that possesses windings formed of cable. However, the machine in Shildneck is a high current/low voltage machine, and Applicants respectfully assert that Shildneck would not work in a high voltage application that the present invention operates in.

Shildneck describes a low-voltage, high-current machine with unconventional windings. Shildneck's objective is low voltage/high current. As shown in Figs. 1-4 of Shildneck, the outermost layer of the winding (*i.e.*, element 8 in Figures 1-4) is made of an insulation material, as opposed to the semiconducting outer layer of the present invention. One object of Shildneck is to reduce the thickness required in the ground insulation (by providing a round conductor). If operated at high voltage, corona would develop in an ionized discharge path between the insulation material and the stator. The electric discharge from the insulation material to the stator would result in a deterioration of the insulation material, and would ultimately lead to a breakdown of the machine.

In machines operating at higher voltages, normally between 10 and 20 kV, sometimes up to 30 kV, the coil end is normally provided with an electric-field control in the form of so-called corona protection varnish intended to convert a radial electric field into an axial field, which means that the insulation on the coil ends occurs at a high potential relative to ground. The electric-field control evens out the dielectric stress of the insulating material in the end winding region, but electric field concentrations are still a severe problem in electrical machines operating at these higher voltages. Shildneck does not have any electric-field control, and such is not needed for machines, like Shildneck, operating at low voltages. Conventional insulation of conductors in electrical machines (such as so called mica-tape) is

produced to some extent to provide resistance to partial discharge. If the ground insulation material as used by Shildneck (silicon rubber), were subjected to partial discharge, it would eventually lead to deterioration of the insulation material. Also, if Shildneck were operated at higher voltages, the uncontrolled electric field in the end winding region would also result in high electric field concentrations causing a high dielectric stress of the insulation material, leading to deterioration of the insulation material.

The "invention" in Elton ('165) is the pyrolyzed glass fiber layer. Elton ('565) describes a process of immersing the winding portions in a bath of resin and vacuum pressure impregnating (VPI) the resin in the winding. The VPI process results in a cured resin having no voids or gaps between layers. The cable shown in Fig. 1 of Elton ('165) includes two pyrolyzed glass fiber layers, layers 104 and 110.

> The internal grading layer [104] is a semi-conducting pyrolyzed glass fiber layer as disclosed herein . . . . An insulation 106 surrounds internal grading layer 104. On the external surface of insulation 106, a semi-conducting pyrolyzed glass fiber layer 110 equalizes the electrical potential thereon.

(Elton ('165): column 2, lines 34-41).

As further evidence that cable 100 shown in Fig. 1 of Elton ('165) would not be suitable as a winding in an electric machine, having two pyrolyzed glass fiber layers would cause the cable to be prohibitively stiff and not suitable for winding through the stator slots. It may be possible to VPI the entire stator in a large resin bath after it had been wound with a flexible cable. However, such a process would not be feasible to produce both the internal grading layer 104 and the external layer 110 since an insulation layer 106 surrounds the internal grading layer 104 and both layers 110 and 104 would need to be exposed to the resin. Accordingly, while Elton et al. ('565) describes how to provide a pyrolyzed glass fiber layer for a bar-type winding, Neither Elton ('565) nor Elton ('165) teach or suggest that cable 100 of Fig. 1 in Elton ('165) or Fig. 7 in Elton ('565) could be used for such a purpose, especially since cable 100 in the Elton et al. references would be stiff, not flexible as the Office contends.

In addition, Applicants present the further, new argument. The Elton '565 patent references Elton '077, which discusses Elton's process for making the pyrolyzed glass material. The method described in Elton yields the result of a stiff cable not capable of bending when cured. This is not surprising since the cable, a power cable, in Elton '565 is for use in long, stretched out runs, where there are no bends therein. This is relevant because the cable shown in Elton '565 cannot be manufactured in a coiled configuration for use in a stator, or in a storage device that requires coil windings that are formed with one turn on top of another. As described below, there is no way to make the cable in Elton '565 in a bent or coiled configuration having a pyrolyzed outer layer without damaging the inner pyrolyzed layer. The pyrolyzed glass material needs to be cured. Once it is cured, the material becomes stiff. If bent after becoming stiff, the material cracks and develops voids, which would give rise to a cable failure if exposed to a high voltage stress. While it is possible to cure the outer layer of the cable after it is coiled, the insulation structure actually has been encased with the insulation layer/outer pyrolyzed layer. Moreover, if the inner layer is cured before the insulation and outer layer are applied, then there is no way to later bend and form the Elton cable in a "compact" coiled configuration for use in a rotating electric machine, a power transformer or a compact magnetic energy storage module without cracks/voids, as described above.

Elton ('565) recognizes that in the end-winding region just outside of the stator of an electric machine, there will be problems caused by strong electric fields. As a solution, Elton ('565) describes using a known grading near the stator to allow some of the accumulated charge to bleed off to the stator, thus reducing the risk of arcing, but Elton ('565) offers no other solutions to the problems in the end-winding region. The strong electric fields will be present throughout the end-winding region, not just near the stator. The grading used in Elton ('565) will help to lessen the effects of the strong electric fields near the stator, but will not address the problems in the end-winding region away from the stator, further evidence that Elton is describing a conventional bar-type winding. Elton ('565) uses rigid bar-type windings which are able to withstand mechanical stresses caused by induced fields between the windings in the end-winding region, where electromagnetic fields are not contained in the winding. The mechanical rigidity of the bar-type windings suppress the amount of vibration

in the end-winding region that would otherwise be present. The fact that a grading system is used to lessen the end-winding region problems near the stator in Elton ('565) is further evidence that neither Elton ('565) nor Elton ('165) suggest using cable 100 winding of a machine, since such a cable would not have a grading.

The present invention specifically embodies a flexible cable winding and cable structure. The cable allows for a continuous full turn, making a joint in the end winding unnecessary. This, along with the fact that the outer surface of the cable is grounded, allows for the confinement of the electric field resulting in the diminished risks of losses and damage in the end winding region. Elton ('165) may teach a cable, however, in no way does it teach the cable as a winding.

Moreover, there is no likelihood of success. The MPEP § 706.02(j) sets forth the burden that the Office must carry in order to reject claims based on obviousness. One criteria that must be met is that there must be a reasonable expectation of success. This criteria cannot be met when the aforementioned references are combined.

Assuming for the sake of argument that the cable 100 recited in Elton ('165) is combined with the cable windings of Shildneck, there is no likelihood of success because of the inflexibility and brittleness of cable 100. The pyrolyzed glass layer of cable 100 would crack when attempted to be wound around a core. These cracks would, in effect, promote corona discharge as opposed to prohibit it, as is contended by the Office, resulting in losses attributed to the lack of confinement of the electric field, rendering the system inefficient. It is, therefore, not surprising that neither Elton ('565) nor Elton ('165) make any disclosure of the use of cable 100 as a "winding" in a dynamoelectric machine.

Accordingly, for at least the reasons set forth above, Applicants respectfully request that the rejection of claims 1-9, 11, 15-29, 31 and 32 be reconsidered and withdrawn. Applicants further submit, as an alternate ground of allowability, that claims 2-9, 11, and 15-27 depend from base claim 1 (believed allowable), and claims 31 and 32 depend from base claim 29 (believed allowable), and therefore, include every limitation of the respective base claim. Inasmuch as base claims 1 and 29 are believed to be allowable, Applicants respectfully submit that the respective dependent claims of each base claim are also allowable for at least the same reasons as the base claim is believed to be allowable. Accordingly,

Applicants respectfully request that the rejection of the dependent claims be reconsidered and withdrawn in view of the believed allowability of base claims 1 and 29.

III. <u>REJECTION OF CLAIMS 10 AND 33-44 UNDER 35 U.S.C. § 103</u>

In the Final Office Action, claims 10 and 33-44 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicant Disclosed Prior Art Figure 3 in view of Shildneck (U.S. Patent No. 3,014,139) and Elton et al. (U.S. Patent No. 5,036,165; "Elton ('165)"), and further in view of Takaoka et al. (U.S. Patent No. 5,094,703). The Office contends that it would have been obvious to have used the teaching of Takaoka et al. having insulated and uninsulated electrical conductor strands and to have modified the device of Elton ('165) since such a modification would reduce the amount of insulation needed, minimizing assembly and production costs. Applicants respectfully traverse this rejection for at least the following reasons.

Regarding claim 10, Applicants respectfully submit that claim 10 depends from independent base claim 1 (believed allowable), and therefore, includes every limitation thereof. For at least the reasons set forth above in Section II pertaining to the allowability of claim 1, Applicants respectfully submit that dependent claim 10 is likewise believed to be allowable. Accordingly, reconsideration and withdrawal of the rejection of claim 10 is hereby respectfully requested.

As an additional basis of allowability for claim 10, and with regard to claims 33-44, no motivation, incentive or suggestion to combine the Applicants' Disclosed Figure 3, Shildneck and Elton et al. references, as is set forth in Section II above. Because the base combination is improper, any broader combination is likewise improper, therefore, the broader combination of the Takaoka et al. reference is improper.

Furthermore, Applicants respectfully assert that Takaoka et al. is simply a conventional device, which does not employ a high voltage cable as a winding. Takaoka et al. may disclose a conductor having insulated and uninsulated strands, however, the purpose of this feature in Takaoka et al. is to reduce the "skin effect" associated with self induced currents in a <u>transmission and distribution cable</u>. Takaoka et al. has nothing to do with a

cable winding where power is generated, much less reducing a phenomena called eddy currents which develop when the cable is used as a winding of an electromagnetic device.

In the present invention, the insulated strands reduce eddy current losses by restricting the paths for such currents between the conductive strands. Eddy currents are induced in the winding as a result of the exposure of the winding to high magnetic fields in the rotating electric machine. These currents are problematic in these applications because they create electrical losses which are manifested as thermal energy (heat), which in turn causes a number of reliability problems in rotating machines. The device from the Takaoka et al. reference is not subjected to these problems associated with eddy currents because transmission and distribution cables are not subjected to the localized high magnetic field.

It is also necessary to employ at least one uninsulated strand in the instant invention to make contact with the semiconductive layer to set up an equipotential field, thereby confining the electric field within the winding and allowing for its use as a high voltage winding. In Takaoka et al., the outer strands are insulated because that is where the skin effect current flows. Accordingly, Takaoka et al. teach away from the invention (as claimed) because in the invention, the outer strand or strands are uninsulated for a different purpose. Therefore, in view of the foregoing, Applicants contend that one of ordinary skill in the art to which the invention pertains would not look to Takaoka et al.. Takaoka et al. do not disclose a cable as a winding, and the cable therein is not employed in high voltage applications.

Accordingly, for at least the reasons set forth above, Applicants respectfully request that the rejection of the above claims be reconsidered and withdrawn. As an additional ground of allowability, Applicants respectfully submit that dependent claims 34-44 depend from base claim 33 (believed allowable), and therefore, include every limitation thereof. Accordingly, inasmuch as base claim 33 is believed to be allowable, Applicants respectfully submit that the corresponding dependent claims are likewise allowable.

IV. REJECTION OF CLAIM 12 UNDER 35 U.S.C. § 103

In the Final Office Action, claim 12 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicant Disclosed Prior Art Figure 3 in view of Shildneck (U.S. Patent No. 3,014,139) and Elton et al. (U.S. Patent No. 5,036,165; "Elton ('165)"), and further in

view of Breitenbach et al. (U.S. Patent No. 4,785,138). The Office contends that it would have been obvious to have used the arrangement of Breitenbach et al. to the device as disclosed by Elton ('165) since such a modification according to Breitenbach et al. would provide mechanical protection and electrical shield for the cable. Applicants respectfully traverse this rejection for at least the reason that claim 12 depends from base claim 1 (believed allowable), and therefore, includes every limitation thereof. For at least the same reasons that claim 1 is believed to be allowable, dependent claim 12 is likewise believed to be allowable. Accordingly, Applicants respectfully request that this rejection be reconsidered and withdrawn.

V. REJECTION OF CLAIMS 13 AND 14 UNDER 35 U.S.C. § 103

In the Final Office Action, claims 13 and 14 were rejected under 35 U.S.C. § 103(a) as being unpatentable over
Applicant Disclosed Prior Art Figure 3 in view of Shildneck (U.S. Patent No. 3,014,139) and Elton et al. (U.S. Patent No. 5,036,165; "Elton ('165)"), and further in view of Lauw (U.S. Patent No. 4,982,147). The Office contends that in having a voltage in the 30-36kV range, it would have been an obvious matter of design choice to one having ordinary skill in the art to utilize a step-up transformer in order to increase and meet the required voltage in the application. Applicants respectfully traverse this rejection for at least the following reasons.

Claims 13 and 14 are dependent on base claim 1 (believed allowable), and therefore, include every limitation thereof. Because base claim 1 is believed to be allowable, Applicants respectfully submit that for the same reasons pertaining to the allowability of claim 1, claims 13 and 14 are also allowable.

Additionally, the Office bases its rejection on the fact that Lauw teaches the use of transformers to step-up or step-down the voltage levels required for a given application. Applicants respectfully concede that Lauw may, in fact, disclose such use of transformers, however, the "applications" discussed in Lauw are variable speed drives for driving a pump, which is not disclosed as operating within the 30-36kV range. The Office has assumed, without support, that principles of design choice may apply at the voltage levels for the drive in Lauw and also apply in the 30-36kV range in the present application. In view of the fact that the 30-36kV range is approximately the voltage limit for conventional designs, and has

been for 100 years, because of the breakdown point in air (discharge), such an assumption is improper.

Moreover, Applicants respectfully submit that one of the principle claimed features, or claimed advantages, of the present invention is the ability to provide power to high voltage power networks without the use of an intermediate transformer. Claim 13 positively recites that the electric network is supplied directly without any intermediate connection of a step-up transformer. The present specification unequivocally states "the object of the invention is to provide a plant comprising at least one generator for such high voltage that the step-up transformer becomes superfluous." (Applicants' Specification Page 7, lines 31-33). Applicants' Specification goes on to discuss that the known turbo-generator plant requires the utilization of a step-up transformer, but then refers to Fig. 4 and states: "utilizing a turbo-generator arrangement according to the present invention ... the generator 200 which generates the same high voltage ... as that for which the distribution or transmission network 110 is intended, is directly connected to this distribution or transmission network 110 ... There is thus no need for any step-up transformer." (Applicants' Specification Page 14, lines 34-40).

Accordingly, Applicants respectfully submit that the Office is correct in its assertion that it would have been obvious to one of ordinary skill in the art to utilize a step-up transformer in order to increase and meet the required voltage. However, it would not be obvious to connect the turbo-generator directly to the distribution network, as the present invention does.

Therefore, Applicants respectfully request that in light of the foregoing, the rejection of claims 13 and 14 be reconsidered and withdrawn.

VI. CONCLUSION

The foregoing represents a genuine effort to address and resolve all remaining issues. For the foregoing reasons, all presently pending claims are now believed to be in condition for allowance. Early notice of the same is hereby respectfully requested.

Respectfully submitted,

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EXHIBIT A

COPY OF PRESENTLY PENDING CLAIMS

1. A plant for generating active and reactive electric power for a high-voltage distribution or transmission network, comprising at least one of a gas and steam turbine coupled via a shaft means to at least one electric generator including at least one winding, wherein the winding of at least one of the electrical generators comprises a solid insulation system including at least one of an inner semiconducting layer and outer semiconducting layer, each layer forming an equipotential surface, and a solid insulation.

2. The plant as claimed in claim 1, wherein the generator comprises a magnetic circuit with a magnetic core.

3. The plant as claimed in claim 2, wherein the flux paths in the core of the magnetic circuit comprise at least one of laminated sheet and cast iron and powder-based iron and forged iron.

4. The plant as claimed in claim 1, wherein the winding comprises a high voltage cable including one or more current-carrying conductors surrounded by the solid insulation.

5. The plant as claimed in claim 4, wherein the inner semiconducting layer is surrounded by the solid insulation and is in electrical contact with a selected plurality of the conductors and is at substantially the same potential as said selected plurality of conductors.

6. The plant as claimed in claim 4, wherein the outer semiconducting layer forms an equipotential surface surrounding the conductor and solid insulation.

7. The plant as claimed in claim 6, wherein said outer semiconducting layer is connected to a selected potential.

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8. The plant as claimed in claim 7, wherein the selected potential is earth potential.

9. The plant as claimed in claim 4, wherein at least one of said semiconducting layers form a monolithic structure with the solid insulation having substantially the same coefficient of thermal expansion.

10. The plant as claimed in claim 4, wherein the current-carrying conductor comprises a plurality of insulated strands, and a lesser plurality of uninsulated strands.

11. The plant as claimed in claim 1, wherein the winding comprises a cable including one or more current carrying conductors, each conductor including a number of strands, said inner semiconductor layer being arranged around each conductor, the insulating layer of solid insulation being arranged around each inner semiconducting layer and the outer semiconducting layer being arranged around the insulating layer.

12. The plant as claimed in claim 11, wherein the cable comprises a metal screen and sheath.

13. The plant as claimed in claim 1, wherein at least one electric generator is arranged to supply the out-going electric network directly without any intermediate connection of a step-up transformer (unit transformer).

14. The plant as claimed in claim 1, wherein at least one generator is arranged to supply an out-going network comprising at least 2 part-networks, at least one part-network being supplied via an intermediate system transformer.

15. The plant as claimed in claim 1, comprising several generators, each of which lacks an individual step-up transformer but which, via a system transformer common to the generators, is connected to the transmission or distribution network.

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16. The plant as claimed in claim 1, wherein the windings of the stator in at least one generator are arranged for connection to more than one voltage level.

17. The plant as claimed in claim 15, wherein one of said voltage levels relates to generation of auxiliary power, this being generated from a separate winding in the generator.

18. The plant as claimed in claim 1, wherein at least one generator is earthed via an impedance.

19. The plant as claimed in claim 1, wherein at least one generator is directly earthed.

20. The plant as claimed in claim 1, wherein the stator of the generator is cooled at earth potential by means of a flow of gas and/or liquids.

21. The plant as claimed in claim 1, wherein the cables intended for high voltage have a conductor area of between about 50 and 3000 mm2 and have an outer diameter of between about 20 and 250 mm.

22. The plant as claimed in claim 1, wherein at least one winding of the stator is carried out with fractional slot winding.

23. The plant as claimed in claim 1, wherein at least one winding of the stator is carried out with fractional slot winding.

24. The plant as claimed in claim 1, wherein the rotor of at least one generator is arranged for at least one of 2 and 4 poles.

25. The plant as claimed in claim 1, wherein the voltage level is controllable +- 20% of the rated voltage.

26. The plant as claimed in claim 1, wherein the winding of the generator is arranged for self- regulating field control free of auxiliary means for control of the field.

27. The plant as claimed in claim 1, wherein the stator of at least one generator is composed of axially combined , plate-shaped sections, preferably as whole sections in peripheral direction.

28. The plant for generating active and reactive electric power for a high-voltage distribution or transmission network, including at least one electric generator which is coupled to at least one of gas and a steam turbine via a shaft means and including at least one winding, wherein the winding of at least one of the electric generators comprises a plurality of conductive insulated strands, and a lesser plurality of uninsulated strands and an insulation system in electrical contact with the uninsulated strands operable in excess of 36kV.

29. An electric generator arranged to be coupled to at least one of a gas and a steam turbine via a shaft means and comprising at least one winding , wherein the winding comprises a solid insulation system including at least 2 semiconducting layers, each layer forming an equipotential surface, and an intermediate solid insulation, wherein at least one of the semiconducting layers forms a monolithic structure with the solid insulation having substantially the same coefficient of thermal expansion.

30. CANCELLED

31. A procedure for manufacturing an electric generator as claimed in claim 29, wherein the stator is wound at the plant site where the generator is to be used.

32. The procedure as claimed in claim 31, wherein the stator is manufactured at the factory axially divided into a plurality of plate-shaped, separate sections, each section preferably being manufactured as a whole section in peripheral direction.

33. A plant for generating active and reactive power for high-voltage distribution including at least one rotating high voltage electric machine comprising a stator; a rotor and a winding, wherein said winding comprises a cable including at least one current-carrying conductor including a plurality of insulated strands and at least one uninsulated strand and a magnetically permeable, electric field confining cover surrounding the conductor, said cable forming at least one uninterrupted turn in the corresponding winding of said machine.

34. The plant of claim 33, wherein the cover comprises an insulating layer surrounding the conductor and an outer layer surrounding the insulating layer, said outer layer having a conductivity for establishing an equipotential surface around the conductor.

35. The plant of claim 33, wherein the cover comprises an inner layer surrounding the conductor and being in electrical contact therewith; and insulating layer surrounding the inner layer and an outer layer surrounding the insulating layer.

36. The plant of claim 35, wherein the inner and outer layer have semiconducting properties.

37. The plant of claim 33, wherein the cover is formed of a plurality of layers including an insulating layer and wherein said plurality of layers form a monolithic structure being substantially void free.

38. The plant of claim 33, wherein the cover is in electrical contact with the uninsulated strands of the conductor.

39. The plant of claim of 33, wherein the layers of the cover form a monolithic

structure having substantially the same temperature coefficient of expansion.

40. The plant of claim 33, wherein the layers of the cover form a monolithic structure having substantially the same temperature coefficient of expansion such that the machine is operable at 100% overload for two hours.

41. The plant of claim 33, wherein the cover is operable to render the cable free of sensible end winding loss.

42. The plant of claim 33, wherein the cover is operable to render the cable operable free of partial discharge and field control.

43. The plant of claim 33, wherein the winding comprises multiple uninterrupted turns.

44. The plant of claim 33, wherein the cable is flexible.